



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,946	01/20/2004	Dai Huang	P2019-1/N1062	1274
7590 08/23/2007 UCAR Carbon Company Inc. 12900 Snow Road Parma, OH 44130				
			EXAMINER NGUYEN, THUKHANH T	
			ART UNIT 1722	PAPER NUMBER
			MAIL DATE 08/23/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/760,946

Applicant(s)

HUANG ET AL.

Examiner

Thu Khanh T. Nguyen

Art Unit

1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 22, 24-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoo et al (6,309,591) in view of Harada et al (6,432,158).

Yoo et al disclose an apparatus for consolidating ceramic, metallic, or composite material, comprising a vessel or a compaction chamber (26), upper and lower plungers (58, 40) for applying a shear force of about 5-50MPa and an axial pressure of about 1-2,000 MPa (col. 7, lines 16-18), a power source (PS) for applying a current to the punches (Fig. 1) and the material (col. 10, lines 7-10) and resulting in high heating rate (col. 3, lines 25-32), an infrared detector and a thermocouple are provided for detecting the temperature of the compaction chamber (col. 8, lines 45-56), and a control system (CP) for detecting and regulating the movement of the cylinder (30) that drives the punches (col. 6, lines 18-22) in corresponding with the current passing through the material inside the mold cavity (col. 4, lines 30-49).

However, Yoo fails to disclose a displacement detector for detecting the position of the means for applying pressure.

Harada discloses an apparatus and method for compacting rare earth alloy powder, comprising upper punch (16) and lower punch (14), and position sensors (59, 66) constructed using a linear scale for detecting the position of the punches (col. 7, lines 61 – 66), wherein the

position sensors transfer signals to a controller (90) for moving the punches to respective predetermined positions (col. 13, lines 42-62).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Yoo by providing position sensors as taught by Harada so that the height of the forming article relative to the position of the punches would also be controlled.

In regard to claims 24-25 and 31-32, wherein means for applying pressure comprises a first and second plungers (58, 40).

In regard to claims 26 and 33, wherein the powder source (PS) applies a current to the material through the plungers (Fig. 1, PS, 58, 40).

In regard to claims 27 and 42, Yoo discloses that the compaction chamber (26) is doubled-walled and a cooling fluid is introduced in the space between the walls to insulate the compaction chamber and the surrounding area (col. 8, lines 9-20).

In regard to claim 30, the apparatus further comprises a cavity, or a holding area (92) for receiving the material.

In regard to claims 34-35, Yoo discloses a control panel (190) connected to a control circuit and a computer for controlling the pulsing rate, pulsing time period, current, voltage, pressing time, so that the material is heated and pressed to a predetermine temperature (col. 9, lines 13-30) and pressure (col. 6, lines 18-22).

In regard to claims 36-37, and 39-41, the apparatus further comprises infrared detector or thermocouples (col. 8, lines 45-56) for detecting and controlling the temperature of the material, and a mechanism, or device connected to the cylinder for actuation, variation, and detecting the compaction pressure and for controlling by the operator through the control panel (col. 6, lines

Art Unit: 1722

18-22), wherein the first temperature and the first pressure are the initial pressure and temperature before the compaction process begins and the second temperature and the second pressure are the high predetermined temperature and pressure, at which the material is sintered.

Response to Arguments

3. Applicant's arguments filed June 14, 2007 have been fully considered but they are not persuasive.

The Applicant had repeatedly argued that Yoo's apparatus cannot be used to form or shape a mixture of carbon fibers and matrix material into a carbon/carbon composite material because of high shear force. However, this is the intended use of the apparatus. MPEP Section 2115[R-2] indicates that material or article worked upon does not limit apparatus claims:

"Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." *In re Young*, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

In *In re Young*, a claim to a machine for making concrete beams included a limitation to the concrete reinforced members made by the machine as well as the structural elements of the machine itself. The court held that the inclusion of the article formed within the body of the claim did not, without more, make the claim patentable.

Art Unit: 1722

Although Yoo is preferably operated at a high pressure, Yoo is also capable of operating at lower pressure in order to form article made of composite material (col. 1, lines 19-21) or repair a damaged or worn substrate or parts, coating a particle onto a substrate, and grow single crystals of a particle material (abstract). Therefore, by changing operating conditions, Yoo's apparatus would be capable of forming a compressed composite material which comprises carbon fiber.

Furthermore, claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device *is*, not what a device *does*." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). (Emphasis in original)

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

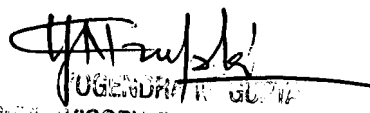
Art Unit: 1722

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Khanh T. Nguyen whose telephone number is 571-272-1136. The examiner can normally be reached on Monday- Friday, 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gupta Yogendra can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TN


YUGENDRA K. GUPTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700